Remarks

Status of application

Claims 1-63 were examined and stand rejected in view of prior art. The claims have been amended to further clarify Applicant's invention. In view of the amendments made and the following remarks, reexamination and reconsideration are respectfully requested.

Prior Art Rejections

A. General

Applicant appreciates the Examiner's courtesy in conducting a telephone interview on October 15, 2008 to discuss the prior art rejections and Applicant's pending claims. Based on these discussions, Applicant has amended independent claims 1, 23 and 43 in an effort to clarify the distinctive features of Applicant's invention and thereby overcome the Examiner's prior art rejections as discussed below in greater detail.

A. First Section 103 Rejection: Goodwin and Barrett

Claims 1-7, 12-29, 34, 37-48, 53 and 56-63 stand rejected under 35 U.S.C. Section 103(a) as being unpatentable over U.S. Patent 6,199,195 to Goodwin et al (hereinafter "Goodwin") in view of U.S. Patent 7,000,219 to Barrett et al (hereinafter "Barrett"). As discussed in detail in the Amendments and the Appeal Brief previously filed by Applicant, Applicant's invention does not simply generate application code based on a model (e.g., UML model) like prior art solutions. Instead, Applicant's invention represents the UML model inside the source code of the application itself so as to enable the model to be reconstructed from the executable application code at runtime. Applicant's invention incorporates a full representation of the model into the source code of the application itself, so as to enables the entire model used for generating the code to be fully reconstructed back into model form at runtime.

The Examiner acknowledges that Goodwin does not include these features of representing the model within the source code itself and therefore relies on Barrett as providing these teachings. However, turning to Barrett, one finds that Barrett does not represent the model in source code, but rather creates a meta model of the UML model and stores this meta model as an XMI file. In the most recent Office Action, the

Examiner argues that Applicant's claims only require "representing the model in source code" and not the "source code for the application" and, therefore, Barrett's teachings of storing model information in an XMI file are equivalent to Applicant's claim limitations. Although Applicant disagrees with the Examiner's interpretation of Applicant's claims, Applicant has amended its independent claims to specifically provide that the model is represented within the source code of the application itself. For instance, Applicant's amended claim 1 includes the following claim limitations:

> creating source code for the application, including representing the model **within the source code of the application itself**, wherein the model is represented as source code and code attributes;
> compiling the source code into an executable application;
>
> (Applicant's claim 1, emphasis added).

As previously discussed in detail in Applicant's most recently filed Amendment, Barrett's solution transforms a UML model into a meta model which it then saves as an XMI file. Thus, Barrett stores this XMI information in a separate file and rather than within the source code itself. Applicant's claimed invention, in contrast, specifically calls for representing the model within the source code of the application itself as source code and code attributes (Applicant's specification, paragraph [0061]).

Another difference between Applicant's claimed invention and Barrett's solution is that Barrett reconstructs the runtime model from this stored XMI-representation and not from a model represented in code of the executable application itself. Barrett's solution "maintains the meta-model associated with the executing system" (Barrett, col. 5, lines 37-38). Moreover, the meta-model remains available to the UML tool and changes to the model have immediate effect on the executing system by addition, removal and/or replacement of system components (Barrett, col. 5, lines 39-44). These features make it obvious that Barrett's system does not reconstruct the model from compiled code since it can be changed in the UML tool while the system is running. Thus, it is clear that the model (in Barrett) is not actually reconstructed from the executable application, but rather from a "meta-model associated with the executing system" stored in a separate file. Barrett's approach of relying on a stored XMI representation may result in version conflict as the software and the separate stored

representation may change such that the stored model does not reflect the actual code implementation. Applicant's solution is specifically designed to avoid this problem of version mismatch by storing the model information inside the code itself (Applicant's specification, paragraph [0059]). Accordingly, Barrett's approach is not comparable to Applicant's claimed invention as it does not provide for representing the model in the source code itself nor does it teach reconstructing the model from the executable application.

More particularly, Applicant's claimed invention provides for use of reflection technique to reconstruct a model (e.g., UML model) from information that is incorporated into the source code of an application when the application was developed. Applicant's approach provides that a compiled application is inspected using introspection/reflection mechanisms to reconstruct the model from the information expressed in the code (Applicant's specification, paragraphs [0061] and [0166]). The prior art references, in contrast teach maintaining a meta-model in a separate stored XMI file. Applicant's respectfully believes that its use of reflection to reconstruct a UML model at runtime from information incorporated into the application itself is a novel use of introspection/reflection mechanisms not previously known in the art. Applicant has also amended its independent claims to bring these distinctive features (formerly included as limitations of dependent claims 7, 29 and 48) to the forefront. For example, Applicant's amended claim 1 includes the following claim limitation:

> running the executable application on a target computer in conjunction with a run-time framework that provides services to the executable application; and
> while the executable application is running, reconstructing the model from the representation incorporated into the executable application and making it available to the run-time framework, including reading metadata incorporated into the executable application using reflection to create a graph of code elements and spanning the graph for re-creating the model based on code elements encountered.
>
> (Applicant's claim 1, emphasis added).

All told, Goodwin and Barrett, even when combined, provide no teaching of fully representing the model inside the source code itself. The representation of the model in the source code is essential to the process of reconstructing the model from the executable application at runtime. Thus, neither Goodwin's nor Barrett's solution can

reconstruct a model from the executable application when the model is not represented in the source code of the application in the first place. As described above, Barrett stores a meta-model in a separate file and does not reconstruct the model from the executable application at runtime using reflection in the manner described in Applicant's specification and claims. As the combined references do not teach or suggest all of the claim limitations of Applicant's claims 1-6, 12-28, 34, 37-47, 53 and 56-63 (and other claims) it is respectfully submitted that the claims distinguish over the references and overcome the Section 103 rejection.

B. Second Section 103 Rejection: Goodwin, Barrett and Moore

Claims 8, 10, 11, 30, 32, 33, 49, 51 and 52 stand rejected under 35 U.S.C. Section 103(a) as being unpatentable over Goodwin (above), in view of Barrett (above), further in view of U.S. Patent 6,560,769 to Moore et al (hereinafter "Moore"). As to these claims, Applicant believes that the claims are allowable for at least the reasons set forth above in the response to the first Section 103 rejection as to the deficiencies of the Goodwin and Barrett references with respect to Applicant's invention. In particular, neither Goodwin nor Barrett provides for fully representing the model within the application source code itself and therefore cannot reconstruct the model from the application.

As discussed in detail in Applicant's most recently filed Amendment in this case, Moore does not cure any of the deficiencies of the prior art references as to Applicant's claimed invention as Moore's system simply parses Java source code files in order to generate a UML representation of such code, which is not comparable to Applicant's claimed invention. Therefore, as the prior art references, even when combined, do not teach or suggest all of the claim limitations of Applicant's claims 8, 10, 11, 30, 32, 33, 49, 51 and 52 it is respectfully submitted that the claims distinguish over the prior art references and overcome any rejection under Section 103.

C. Third Section 103 rejection: Goodwin, Barrett and Schloegel

Claims 9, 31, and 50 stand rejected under 35 U.S.C. Section 103(a) as being unpatentable over Goodwin (above) in view of Barrett (above), and further in view of US Published Application 2004/0044990 of Schloegel (hereinafter "Schloegel"). As to these

claims, the Examiner acknowledges that Goodwin and Mullins do not disclose spanning the graph using a selected one of depth-first, breadth-first and ad-hoc traversal techniques and thus adds Schloegel for these teachings.

Claims 9, 31 and 50 are dependent upon Applicant's independent claims 1, 23 and 43 as well as dependent claims 7, 29 and 48 and, therefore, are believed to be allowable for at least the reasons cited above pertaining to the above-described deficiencies of Goodwin and Barrett in respect to Applicant's invention. As discussed in Applicant's previously filed Appeal Brief and Amendments, Schloegel does not cure these deficiencies as Schloegel simply describes alternative techniques for traversal during code generation and does not include any teaching of representing a unified model within application code generated from the model or of reconstructing the model from the executable application at runtime. Therefore, as the combined references do not teach or suggest all the claimed features of Applicant's invention, it is respectfully submitted that Applicant's claimed invention as set forth by these claims is distinguishable over the references and overcomes the rejection under Section 103.

D. Fourth Section 103 rejection: Goodwin, Barrett and Mutschler

Claims 13, 14, 35, 36, 54 and 55 stand rejected under Section 103(a) as being unpatentable over Goodwin (above) in view of Barrett (above), further in view of U.S. Patent 7,162,462 to Mutschler III (hereinafter "Mutschler"). These claims are believed to be allowable for at least the reasons set forth above as to the deficiencies of Goodwin and Barrett with respect to Applicant's invention. As discussed in detail in Applicant's previously filed Amendment, Mutschler does not cure any of these deficiencies of the primary Goodwin and Barrett references. Accordingly, it is respectfully submitted that Applicant's claimed invention is distinguishable over the combined references, and that the rejection of claims 13, 14, 35, 36, 54 and 55 under Section 103 is overcome.

Any dependent claims not explicitly discussed are believed to be allowable by virtue of dependency from Applicant's independent claims, as discussed in detail above.

Conclusion

In view of the foregoing remarks and the amendment to the claims, it is believed that all claims are now in condition for allowance. Hence, it is respectfully requested that the application be passed to issue at an early date.

If for any reason the Examiner feels that a telephone conference would in any way expedite prosecution of the subject application, the Examiner is invited to telephone the undersigned at 925 465-0361.

Respectfully submitted,

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